

---

## Contents of Volume 9

---

### VOLUME 9 NUMBER 1

JANUARY 1997

- Application-level load migration and its implementation on top of PVM**  
J. Song, H. K. Choo and K. M. Lee 1
- Variable instruction scheduling for MIMD interpretation on pipelined SIMD machines and for compositional instruction sets**  
N. B. Abu-Ghazaleh and P. A. Wilsey 21
- Dimension-exchange-based global load balancing on injured hypercubes**  
J. Wu 41
- GLU: A high-level system for granular data-parallel programming**  
R. Jagannathan, C. Dodd and I. Agi 63

### VOLUME 9 NUMBER 2

FEBRUARY 1997

- Connection resource management for compiler-generated communication**  
S. Hinrichs 85
- Parallel multidimensional bisection**  
W. Baritompä and S. Viitanen 113
- Contextual debugging and analysis of multithreaded applications**  
M. Bednorz, A. Gwozdowski and K. Zieliński 123
- Message based cooperation between parallel depth and intensity matching algorithms**  
W. J. Austin and A. M. Wallace 141

*Indexed or abstracted by: Cambridge Scientific Abstracts, CompuMath Citation Index (Institute for Scientific Information (ISI)), Computing Reviews, Engineering Index, INSPEC, Research Alert (ISI), SCISEARCH Database (ISI), and CompuScience Database of Fachinformationszentrum Karlsruhe.*

---

**VOLUME 9 NUMBER 3****MARCH 1997****A PRAM oriented programming system**

C. León, C. Rodríguez, F. García and F. de Sande 163

**Load balancing schemes for extrapolation methods**

T. Rauber and G. Rünger 181

**Contour ranking on coarse grained machines: a case study for low-level vision computations**

F. Hameed, S. E. Hambruch, A. A. Khokhar and J. N. Patel 203

**Experiences with a wide area network metacomputing management tool using IBM SP-2 parallel systems**

R. Baraglia, G. Faieta, M. Formica and D. Laforenza 223

**VOLUME 9 NUMBER 4****APRIL 1997****Parallel generation of adaptive multiresolution structures for image processing**

X. Li, S. G. Ziavras and C. N. Manikopoulos 241

**SUMMA: scalable universal matrix multiplication algorithm**

R. A. van de Geijn and J. Watts 255

**Automatic selection of load balancing parameters using compile-time and run-time information**

B. S. Siegel and P. A. Steenkiste 275

**VOLUME 9 NUMBER 5****MAY 1997****A comparison of optimization heuristics for the data mapping problem**

N. Chrisochoides, N. Mansour and G. Fox 319

**A poly-algorithm for parallel dense matrix multiplication on two-dimensional process grid topologies**

J. Li, A. Skjellum and R. D. Falgout 345

**A block Jacobi method on a mesh of processors**

D. Giménez, V. Hernández, R. van de Geijn and A. M. Vidal 391

## VOLUME 9 NUMBER 6

JUNE 1997

**Special Issue:**

<b>Java for Computational Science and Engineering—Simulation and Modeling</b>	
<b>Editorial</b>	
G. Fox	413
<b>Java for parallel computing and as a general language for scientific and engineering simulation and modeling</b>	
G. C. Fox and W. Furmanski	415
<b>Optimizing Java bytecodes</b>	
M. Cierniak and W. Li	427
<b>Optimizing Java: theory and practice</b>	
Z. Budimlic and K. Kennedy	445
<b>Technologies for ubiquitous supercomputing: a Java interface to the Nexus communication system</b>	
I. Foster, G. K. Thiruvathukal and S. Tuecke	465
<b>Java simulations for physics education</b>	
S. Warner, S. Catterall and E. Lipson	477
<b>Using Java and JavaScript in the Virtual Programming Laboratory: a Web-based parallel programming environment</b>	
K. Dincer and G. C. Fox	485
<b>Java's role in distributed collaboration</b>	
M. Chen and J. Cowie	509
<b>Java enabling collaborative education, health care, and computing</b>	
L. Beca, G. Cheng, G. C. Fox, T. Jurga, K. Olszewski, M. Podgorny, P. Sokolowski and K. Walczak	521
<b>SuperWeb: research issues in Java-based global computing</b>	
A. D. Alexandrov, M. Ibel, K. E. Schauser and C. J. Scheiman	535
<b>WebFlow—a visual programming paradigm for Web/Java based coarse grain distributed computing</b>	
D. Bhatia, V. Burzevski, M. Camuseva, G. Fox, W. Furmanski and G. Premchandran	555
<b>Automatically exploiting implicit parallelism in Java</b>	
A. J. C. Bik and D. B. Gannon	579
<b>SPMD programming in Java</b>	
S. F. Hummel, T. Ngo and H. Srinivasan	621
<b>Experiments with 'HP Java'</b>	
B. Carpenter, Y.-J. Chang, G. Fox, D. Leskiw and X. Li	633
<b>Resource-aware metacomputing</b>	
A. Acharya, M. Ranganathan and J. Saltz	649

---

VOLUME 9 NUMBER 7

JULY 1997

**Notebook interfaces for networked scientific computing:  
design and WWW implementation**

S. Weerawarana, A. Joshi, E. N. Houstis, J. R. Rice and A. C. Catlin 675

**Performance modeling of dense Cholesky factorization on the  
MasPar MP-2**

V. Garg and D. E. Schimmel 697

**Parallel program analysis on workstation clusters: speedup  
profiling and latency hiding**

R. Togneri 721

## VOLUME 9 NUMBER 8

AUGUST 1997

**Algorithms for solving a spatial optimization problem on a  
parallel computer**

F. George, N. Radcliffe, M. Smith, M. Birkin and M. Clarke 753

**Performance comparison of a set of periodic and non-periodic  
tridiagonal solvers on SP2 and Paragon parallel computers**

X.-H. Sun and S. Moitra 781

**A benchmark study based on the parallel computation of the  
vector outer-product  $A = uv^T$  operation**

R. D. da Cunha 803

**Parallel join for IBGF partitioned relational databases**

M. Bozyigit, S. A. Mohammed and M. Al-Tayyeb 821

---

VOLUME 9 NUMBER 9

SEPTEMBER 1997

**Parallel implementation of BLAS: general techniques for Level 3 BLAS**

A. Chtchelkanova, J. Gunnels, G. Morrow, J. Overfelt and R. A. van de Geijn 837

**Task division for parallel implementation of object identification system based on alternating hypothesize-verify-extend strategy**

W. Lin 859

**Parallel realizations of Kanerva's sparse distributed memory on a tree-shaped computer**

T. Hämäläinen, H. Klapuri, J. Saarinen and K. Kaski 877

**A new memory allocation method for shared memory multiprocessors with large virtual address space**

H. Koide, M. Suzuki and Y. Nakayama 897

---

VOLUME 9 NUMBER 10

OCTOBER 1997

**Message-passing performance of various computers**

J. J. Dongarra and T. Dunigan 915

**A performance debugging tool for high performance Fortran programs**

T. Suzuoka, J. Subhlok and T. Gross 927

**Parallel implementation of a ray tracing algorithm for distributed memory parallel computers**

T.-Y. Lee, C. S. Raghavendra and J. B. Nicholas 947

**Linear array for spelling correction**

S. Fidanova 967

**Parallel computation for natural convection**

P. Wang and R. D. Ferraro 975

**Numerical simulation of fluid dynamic problems on distributed memory parallel computers**

M. A. Pirozzi 989

## VOLUME 9 NUMBER 11

NOVEMBER 1997

**Special Issue:**

Java for Computational Science and Engineering—Simulation and Modeling II

**Editorial**

G. C. Fox	1001
<b>Annotating the Java bytecodes in support of optimization</b>	
J. Hummel, A. Azevedo, D. Kolson and A. Nicolau	1003
<b>CACAO—A 64 bit JavaVM just-in-time compiler</b>	
A. Krall and R. Grafl	1017
<b>A Java bytecode optimizer using side-effect analysis</b>	
L. R. Clausen	1031
<b>A prototype of FORTRAN-to-Java converter</b>	
G. C. Fox and X. Li	1047
<b>Just-in-time optimizations for high-performance Java programs</b>	
M. Cierniak and W. Li	1063
<b>Interactive simulations on the Web: compiling NESL into Java</b>	
J. C. Hardwick, G. Narlikar and J. Sipelstein	1075
<b>A note on native level 1 BLAS in Java</b>	
A. J. Bik and D. B. Gannon	1091
<b>Towards automatic support of parallel sparse computation in Java with continuous compilation</b>	
R. Chang, T. R. Chuang, J. K. Lee and C. W. Chen	1101
<b>Java(TM) applications using NCSA HDF files</b>	
R. E. McGrath, X. Lu and M. Folk	1113
<b>A matrix math library for Java</b>	
T. H. Smith, A. E. Gower and D. S. Boning	1127
<b>Javelin: Internet-based parallel computing using Java</b>	
B. O. Christiansen, P. Cappello, M. F. Ionescu, M. O. Neary, K. E. Schauser and D. Wu	1139
<b>IceT: Distributed computing and Java</b>	
P. A. Gray and V. S. Sunderam	1161
<b>Web-based metacomputing with JET</b>	
H. Pedroso, L. M. Silva and J. G. Silva	1169
<b>Web based framework for distributed computing</b>	
Z. Chen, K. Maly, P. Mehrotra, R. K. Vangala and M. Zubair	1175
<b>javar: a prototype Java restructuring compiler</b>	
A. J. Bik, J. E. Villacis and D. B. Gannon	1181

---

<b>Spar: a programming language for semi-automatic compilation of parallel programs</b>	
K. van Reeuwijk, A. J. van Gemund and H. J. Sips	1193
<b>An Asynchronous Remote Method Invocation (ARMI) Mechanism for Java</b>	
R. R. Raje, J. I. William and M. Boyles	1207
<b>Java/DSM: A platform for heterogeneous computing</b>	
W. Yu and A. Cox	1213
<b>JavaParty—transparent remote objects in Java</b>	
M. Philippsen and M. Zenger	1225
<b>A portable browser for performance programming</b>	
M. Cierniak and S. Srinivas	1243
<b>Collaborative scientific data visualization</b>	
B. Ki and S. Klasky	1249
<b>A Web-based distributed and collaborative 3D animation environment</b>	
T. Lu, C. W. Chiang, C. Lee and T. Y. Lee	1261
<b>Distribution collaboration for engineering and scientific applications implemented in Habanero, a Java-Based environment</b>	
B. Driggers, J. Alameda and K. A. Bishop	1269
<b>Java access to numerical libraries</b>	
H. Casanova, J. Dongarra and D. M. Doolin	1279
<b>A framework for parallel adaptive grid simulations</b>	
M. B. Dywer and V. Wallentine	1293
<b>A prototype computational fluid dynamics case study in Java</b>	
C. A. Atwood, R. P. Garg and D. DeRyke	1311
<b>A kernal approach for interactive-oriented model construction in Java</b>	
O. David	1319
<b>A Java simulation tool for fuzzy clustering</b>	
M. A. Egan, M. Krishnamoorthy and K. Rajan	1327
<b>PNPACK: computing with probabilities in Java</b>	
S. Russell, L. Stiller and O. Hansson	1333
<b>World-Wide Web integration of manufacturing process simulations</b>	
S. Adapalli and K. Addepalli	1341



---

VOLUME 9 NUMBER 12

DECEMBER 1997

<b>Decentralized Remapping of Data Parallel Applications in Distributed Memory Multiprocessors</b> C. Xu, F. M. Lau and R. Diekmann	1351
<b>On Parallel PIC Versatility and the Structure of Parallel PIC Approaches</b> E. A. Carmona and L. J. Chandler	1377
AUTHOR INDEX	1407



